

Descriptions of two New Species and Notes on the Genus *Bakeriella* Kieffer from Brazil and Ecuador (Hymenoptera: Bethyliidae)

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Abstract.—*Bakeriella incompleta* sp. n., from rubber-tree crops of São Paulo, Brazil and *B. grossensis* sp. n. from Mato Grosso, Brazil are described and illustrated. Taxonomic data on *B. reclusa* (Evans) and *B. montivaga* (Kieffer) are included, and the latter recorded from Brazil for the first time. A key to females with a transverse carina on the pronotal disc is presented.

INTRODUCTION

Bakeriella Kieffer is a neotropical genus, ranging from Southern United States to Northern Argentina (Azevedo 1991). Kieffer (1910a) described this genus based on one species from Pará, Brazil, *B. flavicornis*, which has the pronotum carinate laterally and medially as well as anteriorly. This genus is related to *Epyris* Westwood by having the scutellar groove divided (Evans 1964). Kieffer (1910b) described *B. depressa* from Peru which has a carinate pronotum also. Evans (1964) expanded the definition of *Bakeriella* when he described ten species, in some of which the median or lateral carinae of the pronotum are weak or absent. Evans (1969), in his revision of *Epyris*, pointed out the relationship of the *montivagus*-group of *Epyris* to *Bakeriella* by the fact that both groups have similar scutellar pits. Evans (1979) reviewed *Bakeriella*, providing identification keys for both males and females and arranging the genus into four species-groups. In this revision, Evans described one species, *B. erythrogaster*, which has the scutellar groove similar to the genus *Rhabdepyris* Kieffer. Evans also transferred members of the *montivagus*-group from *Epyris* to *Bakeriella* simply by the fact that they closely resemble each other. Curiously, he did not include *B. subcarinata* Evans 1965 in his revision. Gordh & Moczar (1990) cited in their

catalog 19 species for the world and Azevedo (1991) described *B. dentata* from São Paulo State, Brazil.

The present study focuses on four species of this genus, *B. montivaga* (Kieffer), *B. reclusa* (Evans) and two new species. Ideally what is needed is a complete revision of the genus. Unfortunately, specimens are rare in collections and until more material is available for study, I have chosen to present these notes and new species descriptions.

Specimens for this study belong to the following collections (abbreviations according to Arnett & Samuelson (1986)): IBSP, Instituto Biológico de São Paulo, SP, Brasil; MZSP, Museu de Zoologia da Universidade de São Paulo, SP, Brasil; UFES, Coleção de Entomologia da Universidade Federal do Espírito Santo, Vitória, ES, Brasil. The last collection is not included in Arnett & Samuelson (1986) because it is new.

Abbreviations used follow Evans (1964) and are as follows: LFW, length of forewing; WH, maximum width of head, including eyes; LH, length of head, measured from median apical margin of clypeus to median point of vertex; WF, minimum width of frons; HE, maximum height (or length) of eye; WOT, maximum width of ocellar triangle, including posterior ocelli; OOL, shortest ocellular line. The nomenclature of the integument follows Eady (1968).

***Bakeriella incompleta*, sp. n.**

Figs. 1-2

Holotype female.—Brazil: SP, Ibatinga; 05.X.1988; yellow pan trap, rubber-tree crop, no collector given. (UFES).

Description of holotype female.—Length of body 6.0 mm; LFW 2.85 mm; head and thorax black, abdomen black except tip dark brownish; palpi light brownish; mandible brownish, black at base and with a light brownish spot outside, teeth reddish; antennal scape dark brownish, apex brownish, pedicel and flagellum somewhat infuscated; tegula brownish; fore and hindcoxae black, midcoxa dark brownish; trochanters, femora, tibiae and tarsi dark brownish, the anterior being lighter; wings subhyaline somewhat brownish, veins, prostigma and stigma dark brownish.

Head (Fig. 1). Mandible with 5 teeth, apical tooth largest (Fig. 1). Clypeus with subangulate median lobe, with median carina straight in lateral profile, clypeus forming a small excavated reentrance in the region of contact with frons. WH 1.03 X LH; WF 0.5 X WH; WF 1.34 X HE; WOT 1.33 X OOL. Antennal scrobe not carinate. Posterior ocelli about 3 X their diameter from the vertex. Vertex nearly straight and with lateral angles rounded off. Distance from the top of eyes to crest of vertex about 0.7 X HE. Length of first four antennal segments in a ratio of about 11:5:4:4. Segments 5 to 12 about as wide as long. Temple not carinate. Frons somewhat alutaceous and brilliant.

Mesosoma (Fig. 1). Somewhat more alutaceous than frons, mesoscutum polished anteriorly. Pronotal disc slightly convex anteriorly, transverse anterior carina without teeth, median carina weak, situated in a slight depression and absent anteriorly, not intersecting transverse carina. Posterior margin of pronotal disc paralleled by a series of small foveae; lateral margin of disc somewhat sharpened, not carinate, and slightly diverging posteriorly; median width of the disc slightly greater than its length; disc slightly shorter than mesoscutum and scutellum together. Notauli not reaching the anterior margin of mesoscutum, converging posteriorly, widened posteriorly, and slightly curved anteriorly. Parapsidal furrows straight, somewhat more enlarged posteriorly, occupying only the posterior half of mesocutum

(fig. 1). Scutellar pits transverse, much wider than long, separated by a thin septum which is lower than margin of foveae. Propodeal disc as wide as long, with three discal carinae, median one complete and the others incomplete, occupying about two thirds of disc and converging posteriorly but not reaching median carina; space among discal carinae with transverse striae; disc without sublateral carinae; inner side of lateral carinae paralleled by a series of small irregular depressions; anterior part of space between lateral and discal carinae occupied by a rather large depression; posterior angle of the disc foveolate; declivity of propodeum with median carina and perpendicular striae. Metapleuron with longitudinally sinuous striae. Mesopleuron granulate, with large fovea anteriorly and small, deep pit at anterior margin, with small pentagonal fovea and elongate upper fovea (fig. 2). Mesosternum with small median pit, anterior margin of acetabular carina paralleled by striae. Midtibia spinose. Forefemur 2.0 X as long as thick, midfemur 1.65 X as long as thick. Claw trifid, first tooth rounded off, the others sharp.

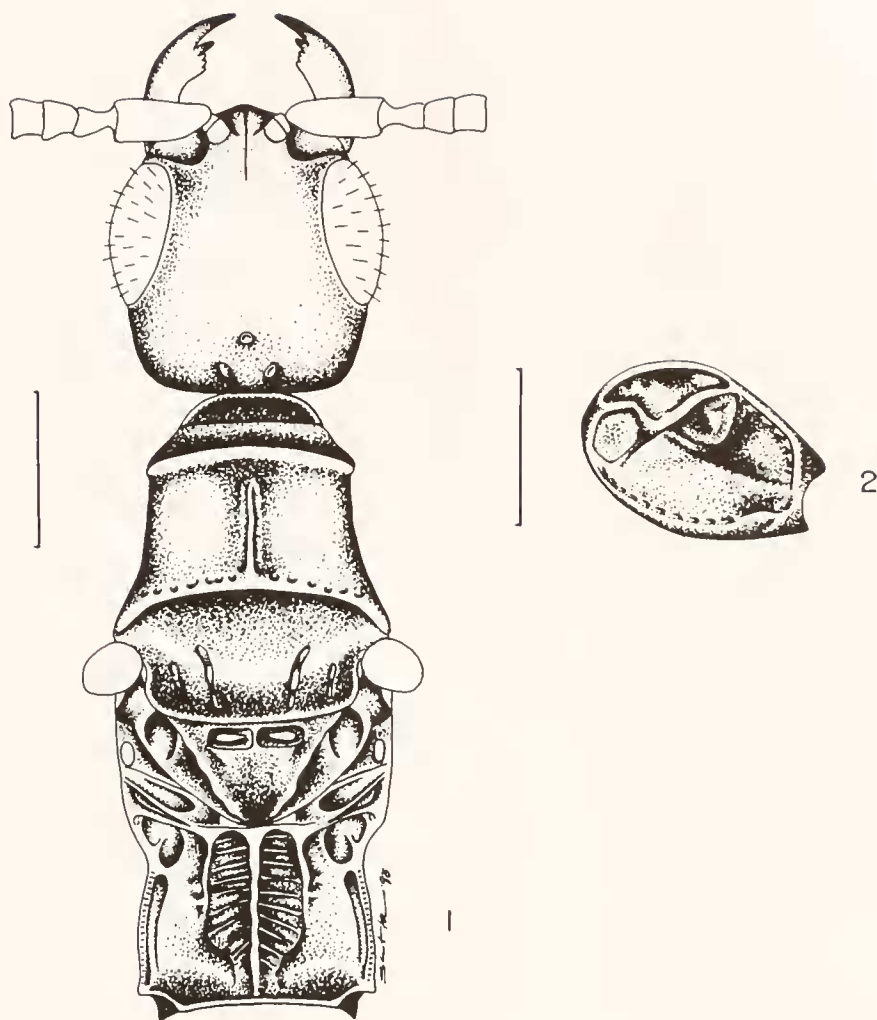
Metasoma. Sterna setose on posterior of each sternum. Terga with few setae on the posterior half of each tergum. Terga I and II with lateral setae. Transverse section of metasoma circular. Length of mesosoma 1.35 X length of metasoma. Valvae III dark brownish with only its end setose, setae range between one third and a half length of the valvae.

Paratype female.—BRAZIL: SP, Bálamo; 21.IX.1988, white pan trap, no collector given. (IBSP).

The paratype differs from holotype as follows: WH 1.00 X LH; WF 0.57 X WH; WF 0.76 X HE; OOL 1.62 X WOT; propodeal disc 1.08 as large as long.

Remarks.—This species is known only from the female. *Bakeriella incompleta* differs from other species in the genus in having the median longitudinal pronotal carina incomplete anteriorly, not reaching the anterior transverse carina, but reaching the posterior margin. In *B. cristata* Evans this carina is incomplete posteriorly.

Etymology.—The specific name refers to the fact that the median longitudinal carina of the pronotal disc is incomplete.



Figs 1-2. *Bakeriella incompleta*, sp. n. 1, head and mesosoma, dorsal view; 2, mesopleurum, lateral view. Scale = 0.5 mm.

***Bakeriella grossensis*, sp. n.**

Holotype female.—Brazil: Barra do Tapirapé, MT; XII.1960; unknown trap; B. Malkin, col. (MZSP).

Description of holotype female.—Length of body 3.75 mm; LFW 2.4 mm; head and mesosoma black, metasoma black with apex somewhat brownish; palpi brownish; mandible yellowish with teeth darker; antenna yellowish with scape darker; tegula yellowish; coxae and femora brown, trochanters, tibiae and tarsi yellowish; wings subhyaline, veins brown.

Head. Mandibles with 5 teeth, the basal teeth small and rounded off, the 2 apical teeth sharp-

ened, anterior tooth largest, the second of median size. Clypeus with median lobe angulate, without median carina, clypeus forming a small excavated reentrance in the region of contact with frons. Eyes with sparse long hairs. WH 1.08 X LH; WF 0.58 X WH; WF 1.16 X HE; WOT 1.62 X OOL. Antennal scrobe not carinate. Distance posterior ocelli from vertex about 2.8 X diameter of ocelli, angle of ocellar triangle less than a right angle. Vertex rounded, very slightly angled laterally. Distance from the top of eyes to crest of vertex about 0.57 X HE. Length of first four antennal segments in a ratio about 20:8:7:7. Temple not carinate. Frons coriaceous with punctures which are separated by 1-3 X their own diameters.

Mesosoma. Pronotal disc coriaceous, punctures similar to frons, with straight anterior transverse carina, without median longitudinal carina, posterior margin paralleled by series of small foveae; sides of disc subparallel; median width of disc 1.17 X its length. Pronotal disc 0.77 longer than mesoscutum and scutellum together. Anterior half of mesoscutum alutaceous, posterior half coriaceous. Notauli straight and very thin, vestigial anteriorly, widened posteriorly, reaching both anterior and posterior margin of mesoscutum. Parapsidal furrows straight, occupying only posterior half of mesoscutum and reaching its posterior margin. Scutellar pits transverse, 2.0 X as wide as long, separated by thin septum. Propodeal disc 1.05 X as wide as long, with three discal carinae, median one complete and lateral ones converging behind, not reaching median carina; space between discal carinae with small transverse striae, space between discal carinae and lateral carina polished; disc without sublateral carinae; lateral carinae bordered by a depression with small transverse striae; posterior angle of disc foveolate; declivity of propodeum with median carina and perpendicular striae. Metapleuron alutaceous, without striae. Mesopleuron coriaceous, with large ventral fovea occupying the lower half of mesopleuron, with deep pit in upper margin of lower fovea, with a fovea in the anterior part of mesopleuron and with long fovea in upper part of mesopleuron opened anteriorly. Mesosternum coriaceous, with pit in the middle of posterior region. Midtibia spinose. Forefemur 2.5 X as long as thick, midfemur 1.7 X. Claws trifold, first tooth rounded off, the others sharpened.

Metasoma. Wholly polished, terga and sterna with few setae. Setae of terga on posterior and lateral margins. Transverse section of metasoma subcircular. Length of mesosoma slightly longer than the metasoma. Valvae III brown with setae on apex.

Remarks.—This species is known only from the holotype. It runs to *B. inconspicua* and *B. polita* in the key written by Evans (1979). *B. grossensis* differs from *B. inconspicua* in having the scutellar pits transverse, the claws trifold, the eyes not strongly setose, the metasoma black with reddish apex and the mandible 5-toothed. *B. grossensis* differs from *B. polita* in lacking a median carina in the clypeus, in lacking a lateral carina on the pronotal disc, the head being not well developed above the eyes and

the occipital carina being obscured in full frontal view of head. In addition, the mandible of *B. grossensis* has two big apical teeth, while *B. polita* has one and *B. inconspicua* has three.

Etymology.—The specific name is in reference to the Mato Grosso State, region of origin of the holotype.

***Bakeriella montivaga* (Kieffer) 1910b**

Epyris montivagus Kieffer 1910b:31; Evans 1969:324

Bakeriella montivaga: Evans 1979:261

This species is recorded from Peru, Colombia (Kieffer 1910b), Bolivia, Ecuador, Venezuela, Panama, Costa Rica, Honduras, Mexico (Evans 1969), and now from Brazil.

Four females have been studied: Bálsamo, SP, Brazil, one female, 28.IV.1988, yellow pan trap, rubber-tree crop, no collector given (UFES). The others were from Pichincha, Centro Científico R. Palangue, Ecuador, 21.XII.1980, 1.I.1981, 4.I.1981, forest, S. Sandoval, col. (MZSP).

These specimens are similar to the type; pronotal disc with the sides diverging posteriorly; WH 0.99 to 1.17 X LH; WF 0.53 to 0.59 X WH; WF 1.18 to 1.46 X HE; OOL 1.63 to 1.94 X WOT; propodeal disc slightly wider than long. The line of small foveae near the posterior margin of the pronotal disc is weakly angled anteriorly in the middle. This character is common only in males. Evans (1969) considered the possibility that *B. quinquepartita* (Kieffer) and *B. montivaga* represent variations of a single species. Indeed, both species are very similar and the only differences between them were pointed out in Evans' (1979) key to females.

***Bakeriella reclusa* (Evans) 1969**

Epyris reclusus Evans 1969:329

Bakeriella reclusa: Evans 1979:261

This species was described from Costa Rica and El Salvador. Evans (1979) studied a female from Ecuador. I have examined a male from Ecuador: Morona Santiago, Los Tayos, 3.VIII.1976, DeVries, col. (MZSP). Measurements for this species are: LFW = 2.13 mm, WH 1.2 X LH; WF 0.55 X WH; WF 1.06 X HE; WOT 1.44 X WOT. The pronotal disc is slightly wider than long, and the propodeal disc is as long as wide.

The following key to females with an anterior transverse carina on the pronotal disc is modified from Evans (1979:258) and includes *B. dentata* Azevedo 1991, *B. subcarinata* Evans 1965, *B. incompleta*, sp. n., and *B. grossensis*, sp. n.

1	Pronotum without median longitudinal carina; head black	2
1'	Pronotum usually with complete median carina; head black or dark green	7
2(1)	Legs wholly yellowish; propodeal disc covered with weak transverse striations ...	<i>floridana</i> Evans 1964
2'	Coxae and femora largely black; metapleuron shining, at most with very weak sculpture	3
3(2')	Transverse carina of pronotum weakly angled forward medially; median area of propodeum rather weakly sculptured	4
3'	Transverse carina of pronotum evenly arched; median area of propodeum with strong transverse ridges	5
4(3)	Mandible with 5 teeth, basal 3 small; frons with small punctures which are separated by 1.5-3.0 X their own diameters	<i>olmeca</i> Evans 1964
4'	Mandible with only two large apical teeth; frons with somewhat stronger and more widely spaced punctures	<i>brasiliiana</i> Evans 1964
5(3')	Sides of pronotal disc carinate anteriorly; scutellar pits ovoid; mandible with 3 strong apical teeth	<i>inconspicua</i> Evans 1964
5'	Sides of pronotal disc not carinate; scutellar pits transverse; mandible with 1 or 2 strong apical teeth	6
6(5')	Sides of pronotal disc sharpened; mandible with one large apical tooth; scutellar pits slightly wider than long	<i>polita</i> Evans 1964
6'	Sides of pronotal disc angled, but not truly sharpened; mandible with two large apical teeth; scutellar pits 2.0 X wider than long	<i>grossensis</i> , sp. n.
7(1')	Median carina of pronotal disc incomplete	8
7'	Median carina of pronotal disc complete	9
8(7)	Median longitudinal carina of pronotum lacking posteriorly; body black with green metallic reflexions	<i>cristata</i> Evans 1964
8'	Median longitudinal carina of pronotum lacking anteriorly; body black without metallic reflexions	<i>incompleta</i> , sp. n.
9(7')	Internal margin of transverse carina of pronotum with tooth-like emargination	<i>dentata</i> Azevedo 1991
9'	Internal margin not like above	10
10(9')	Median longitudinal carina of pronotum somewhat weak and not paralleled by a depression	<i>subcarinata</i> Evans 1965
10'	Median longitudinal carina of pronotum well evident and situated in a depression	<i>inca</i> Evans 1964

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